

AMENDMENTS TO THE CLAIMS

Claims 1-7 (Canceled)

8. (Currently Amended) An inverter circuit for discharge lamps for multi-lamp lighting said circuit comprising:

at least two coils connected to a secondary winding of a step-up transformer of the inverter circuit, the at least two coils being arranged and magnetically coupled to each other to form a shunt transformer for shunting current such that magnetic fluxes generated by the at least two coils are opposed to each other to cancel out, the at least two coils being configured to ensure a sufficient inductance for the shunting transformer,

discharge lamps connected to said coils, respectively, with currents flowing therethrough being balanced with each other, wherein a large number of discharge lamps are arranged as backlights in a surface light source,

an electric conductor being arranged adjacent to said discharge lamps, wherein ~~parasitic capacitances are generated between said discharge lamps and said adjacent conductor, said parasitic capacitances being generated in response to said backlights being added to each other as appropriate via said shunt transformer,~~

wherein

the discharge lamps arranged as said backlights comprising an electrode portion and a positive column have a negative resistance characteristic,

wherein

~~_____ an impedance characteristic of the electrode portion and the positive column of each of said discharge lamps has a negative resistance characteristic,~~

the inductance of the shunting transformer is sufficient to cause a reactance of the inductance of said shunt transformer to exceed the negative resistance of each of said discharge lamps arranged as said backlights during the current balancing operation, thereby causing each of said discharge lamps to be lit, said reactance being in an operating frequency of the inverter circuit,

a shunt circuit is formed by arranging a plurality of shunt transformers such that shunt coils of the plurality of shunt transformers are connected to form a multi-tier structure, shunt coils associated with at least one tier in the multi-tier structure being operably connected to the discharge lamps, and

a reactance value of an upper shunt coil is sequentially reduced in comparison with that of a lower shunt coil, whereby a number of turns of shunt coils is progressively reduced.

Claims 9-18 (Canceled)

19. (Currently Amended) ~~The~~ An inverter circuit for discharge lamps for multi-lamp lighting, said circuit comprising: according to claim 1, wherein

at least two coils connected to a secondary winding of a step-up transformer of the inverter circuit, the at least two coils being arranged and magnetically coupled to each other to form a shunt transformer for shunting current such that magnetic fluxes

generated by the at least two coils are opposed to each other to cancel out, the at least two coils being configured to ensure a sufficient inductance for the shunting transformer,
discharge lamps connected to said coils, respectively, with currents flowing
therethrough being balanced with each other, wherein a large number of discharge lamps
are arranged as backlights in a surface light source,
an electric conductor being arranged adjacent to said discharge lamps,
wherein
the discharge lamps arranged as said backlights have a negative resistance
characteristic,
the inductance of the shunting transformer is sufficient to cause a
reactance of the inductance of said shunt transformer to exceed the negative resistance of
each of said discharge lamps arranged as said backlights during the current balancing
operation, thereby causing each of said discharge lamps to be lit, said reactance being in
an operating frequency of the inverter circuit,
a shunt circuit is formed by arranging a plurality of shunt transformers
such that said shunt transformers are connected to each other in the form of a tournament
tree, whereby shunt transformers are sequentially connected to each other to form a
multi-tier structure,
two windings of coils of each shunt transformer in the multi-tier structure
are wound such that magnetic fluxes generated by said respective windings are opposed
to each other, and

for each tier in the multi-tier structure, one end of each of said two windings are connected to each other, with each of the other ends of said two windings being connected to the connected ends of two windings of a shunt transformer in a subsequent tier, except for the last tier in the multi-tier structure in which the other ends of said two windings are connected to respective discharge lamps, and
_____ when said shunt coils are connected to form a multi-tier structure, a reactance value of an upper shunt coil is sequentially reduced in comparison with that of a lower shunt coil, whereby a number of turns of shunt coils is progressively reduced.

Claims 20-24 (Canceled)

25. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 19, 5, including a detection circuit comprised of diodes, the detection circuit being configured to detect a voltage generated when any one of said discharge lamps become abnormal, wherein

one end of each diode in the detection circuit is connected to a junction point at which a respective winding of said shunt transformer and an associated one of said discharge lamps, and

the other end of diode in the detection circuit is connected to a junction point at which the windings of the shunt transformer are connected.

Claims 26 and 27 (Canceled)

28. (Previously Presented) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 8, including a detection circuit comprised of diodes, the detection circuit being configured to detect a voltage generated when any one of said discharge lamps becomes abnormal, wherein

one end of each diode in the detection circuit is connected to a junction point at which a respective winding of said shunt transformer is connected to an associated one of said discharge lamps, and

the other end of each diode in the detection circuit is connected to a junction point at which the windings of said shunt transformer are connected together.

Claims 29 and 30 (Canceled)

31. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 19, 5, wherein said two coils of each shunt transformer have obliquely-wound windings.

Claims 32 and 33 (Canceled)

34. (Previously Presented) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 8, wherein said two coils of each shunt transformer have obliquely-wound windings.

Application No. 10/773,230
Amendment dated March 5, 2007
Reply to Office Action of October 4, 2006

Docket No.: 0353-0202P

Claim 35 (Canceled)